
# Virtual Institute Directions, Solutions Tools

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# Supporting Collaboration Across Disciplines, Distance, Institutional Cultures

- **Social and technological challenges**
- **Strategies for overcoming them**
- **Our progress so far**
- **Request for feedback**

# NAI Today

- **700+ Members**
- **14 Lead Sites**
- **15 Lead Teams**
- **100+ Collaborating Sites**
- **NAI Central**
- **International Associates and Affiliates**
- **In active relationship with larger astrobiology community**

# NAI's Goals for a Virtual Institute

- **Scientific interaction within/among NAI Teams - anytime/any place data sharing and collaboration**
- **Interdisciplinary "Communities of Practice"**
- **Virtual Institute requirements:**
  - Supportive organizational culture
  - Collaboration/Communication tools (hardware and software)
  - Training in the use of the tools
  - On-going assessment of collaborative research support



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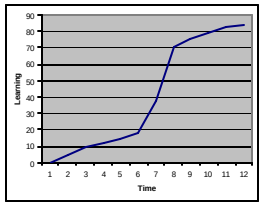
# The Social Challenges of Virtual Collaboration

- **Differences of language**
- **Time pressure**
- **Uneven access to collaborative opportunities**
- **Degree of common interests/goals/purpose**
- **In-Group/Out-Group perceptions**
- **Intellectual property and attribution issues**
- **Continuum of Enthusiasm**


- **Learning curve regarding shared knowledge**



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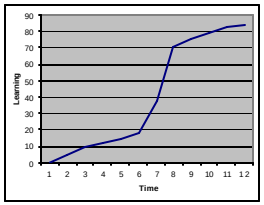
# The Technical Challenges of Virtual Collaboration

- **Ease of Use**
- **Platform Incompatibilities**
- **“Bandwidth” (access speed)**
- **Access**
  - **Lack of equipment**
  - **Uneven distribution of existing equipment**
  - **Overuse of existing equipment**
- **Learning Curve regarding technology**
- **IT Support**



# Approach: Encourage a Culture of Collaboration

**Stages of Culture Change**

- **Innovation**
- **Introduction**
- **Dissemination**
- **Acceptance**
- **Adoption**
- **Challenge**

# Potential Benefits of a Culture of Collaboration

- **Increased thinking “out of the box”**
- **Collective knowledge building and knowledge exchange**
- **Increased synergies of shared approaches and shared data**
- **Intellectual breakthroughs and innovative applications**
- **Reduced redundancy in funding of projects**

# How is a Culture of Collaboration Promoted? Virtual Institute Design Cycle

- **Discovery**
  - ☑ **Ethnographic research**
  - ☑ **Key stakeholder interviews**
  - ☑ **Institute-wide needs assessment**
  - ☑ **Collaborative tools research**
  - ☑ **Some demos**
- **Design**
  - **Demo promising solutions**
  - **Evaluate demo outcomes**
  - **Recommend promising products for pilot**
- **Development**
  - **Conduct pilots**
  - **Evaluate pilot outcomes**
  - **Develop deployment pla**
- **Deployment**
  - **Phased roll-out (Institute-wide)**
  - **Evaluate deployment progress**



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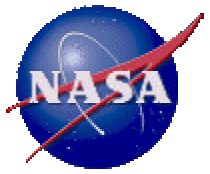
# Needs Assessment: Preliminary Social Findings

- **From 164 survey respondents: Ideal Values and Behaviors**
  - Common goals/objectives
  - Shared intellectual interests
  - Willingness to participate/work together/share resources
  - Recognition of need for virtual collaboration
  - Regular team meetings/team cohesion
  - Communication across teams
  - Exchange of students/postdocs/senior researchers
  - Willingness to explore new technologies
  - Frequent use of technology by many
  - Minimum bureaucracy
  - Research reported to astrobiology community/public

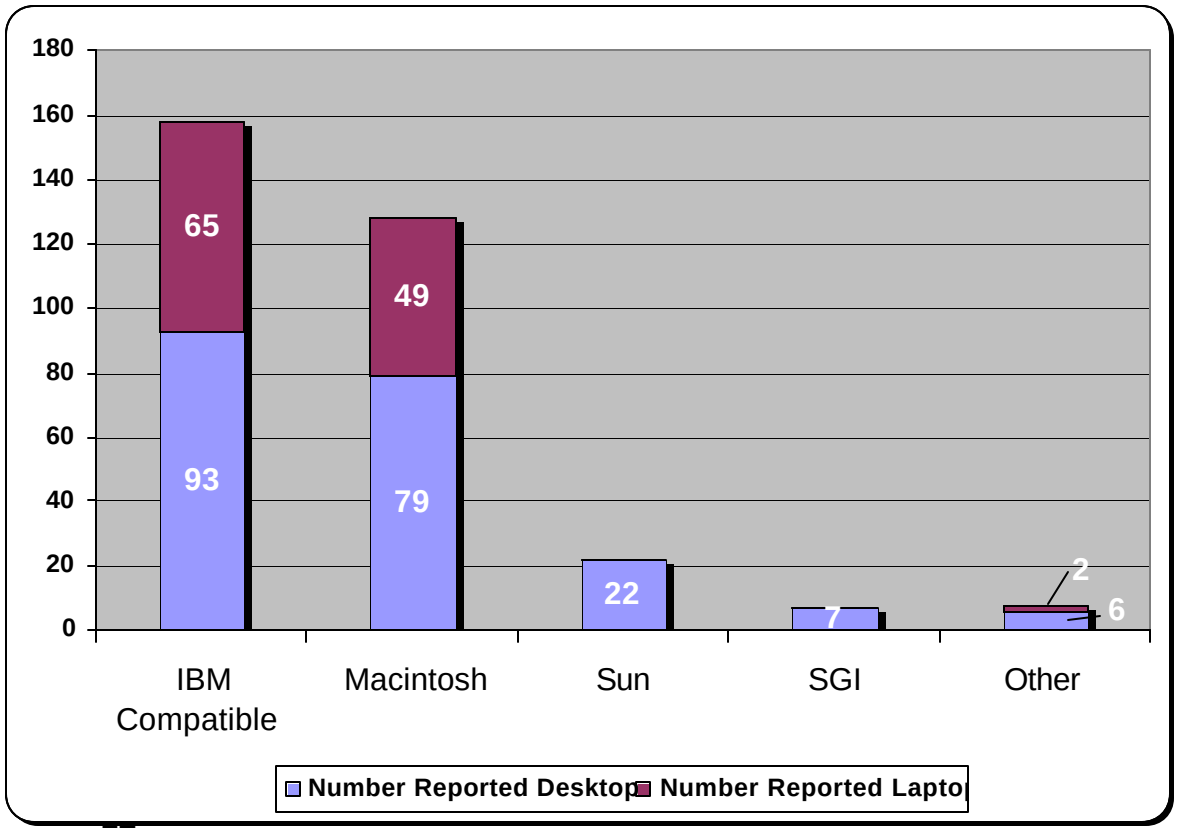



# Needs Assessment: Preliminary Technical Findings

- Hardware platforms
- Internet connectivity
- Forward migration of operating systems
- IT support
- Technology skill level
- User requirements

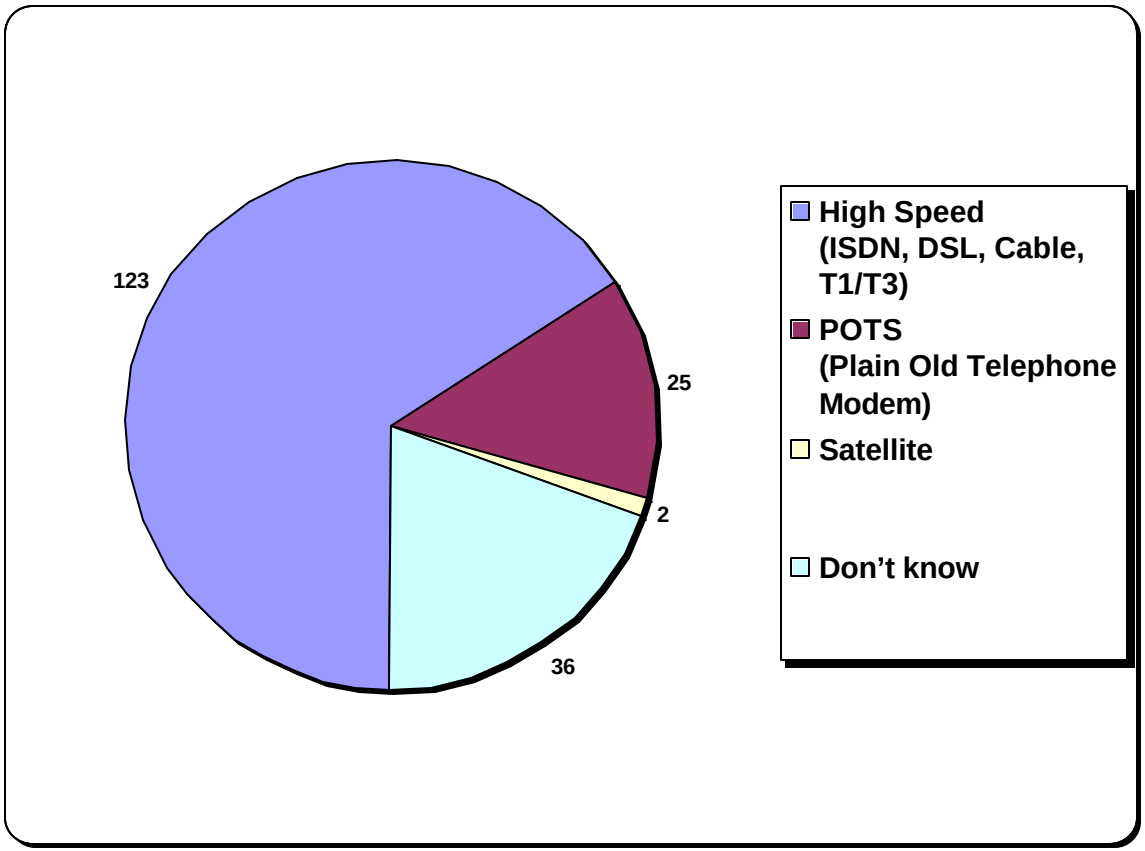
# Hardware Platform

- Among survey respondents - nearly half Macs **(128 out of 323)**

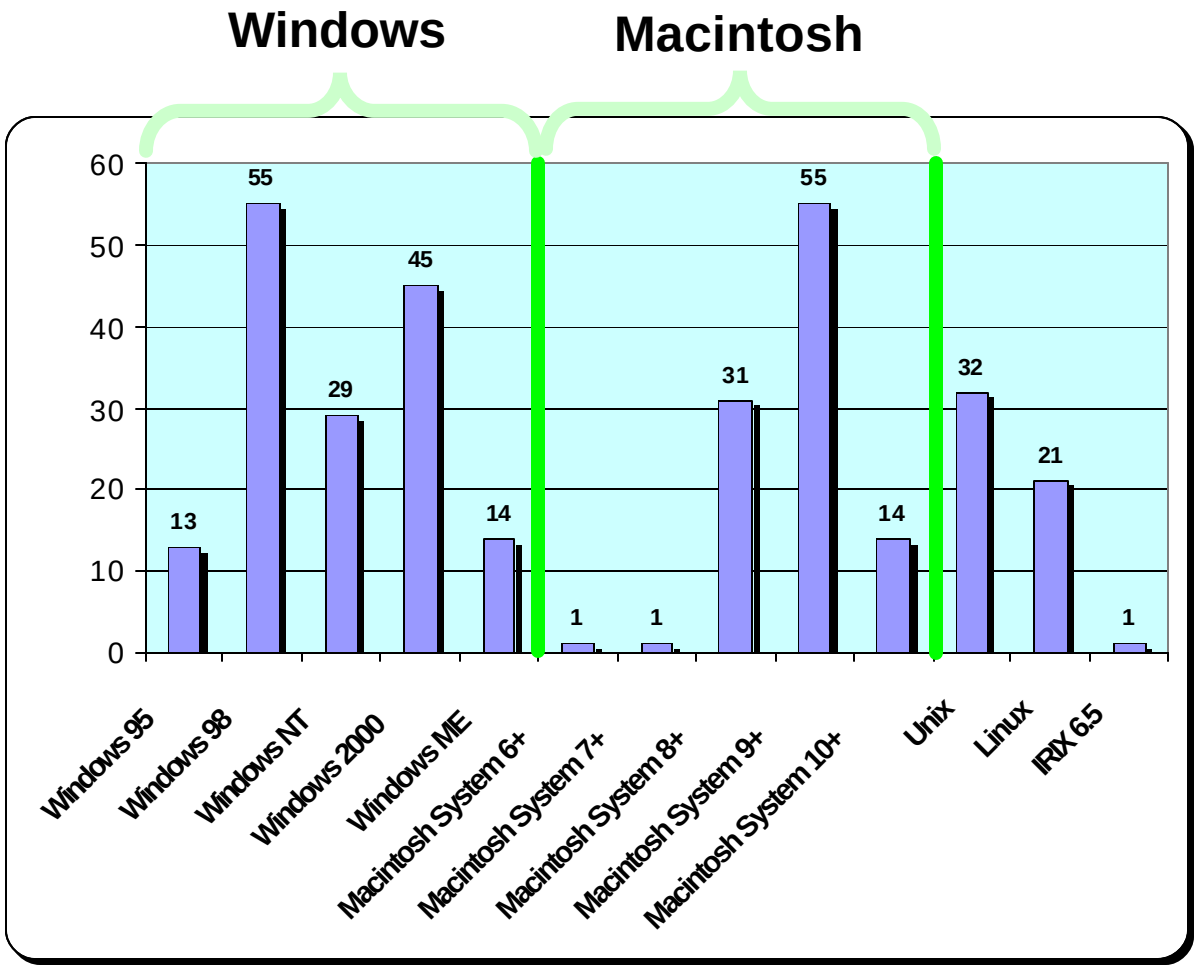


# Internet Connectivity

- Two-thirds of survey respondents have high-speed access **(123 out of 186)**



# Pattern of OS Forward Migration - Based on Survey Responses

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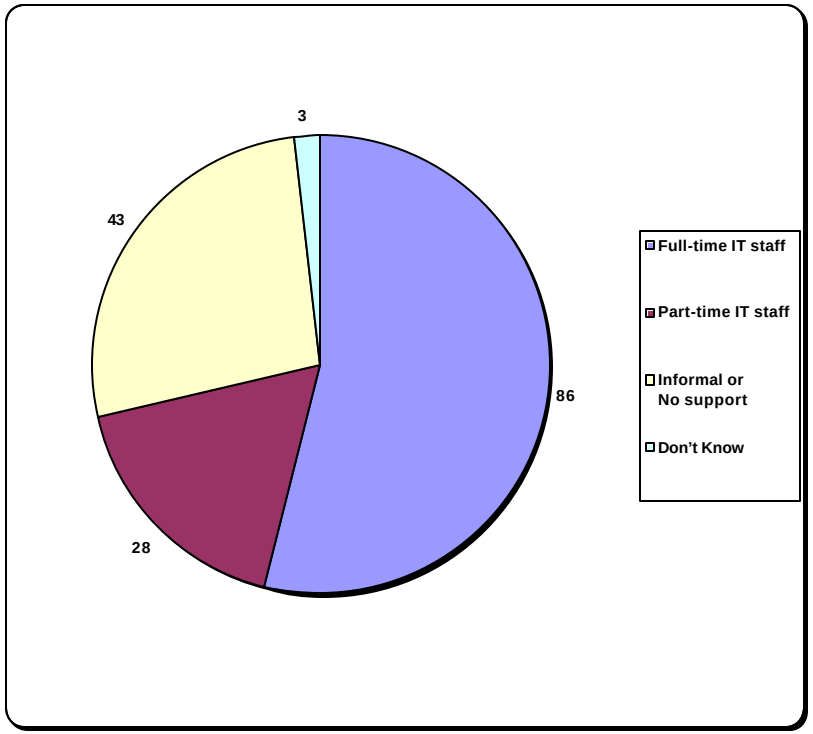
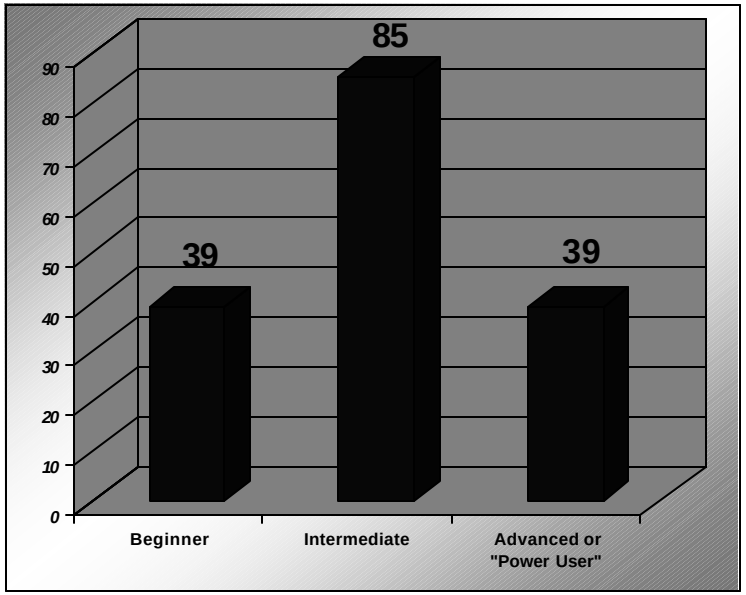
# Uneven IT Support at Local Institutions

– One-fourth of respondents to survey have only peer or no support
(43 out of 160)



# Mixed Technology Skill Level

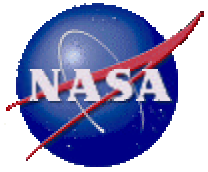
- **Possibility to recruit some members to aid in advancing others**
  - **Half of survey respondents consider themselves intermediate (85 out of 163)**
  - **One-quarter of respondents are “beginners” and one-quarter are “advanced” (39 out of 163)**



# User Requirements

**Identified by Survey respondents**

- **Cross-platform compatibility**
- **Desktop tools (to include ALL members)**
- **Web-based access**
- **Ease of Use**
- **High-speed**
- **Reliability**
- **Security**
- **Privacy**
- **Reasonable Cost**



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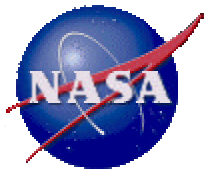
# NASA Requirements

- **NAI - compliant with the NASA Collaborative Engineering Facilities to ensure a flexible, adaptive and secure infrastructure: technology architecture built on standards based protocols**
  - standard compliant core facilities at lead NAI sites
  - the provision of a system that can leverage off of existing NASA infrastructure
  - proprietary systems only considered when there are no standard compliant options
  - Products/vendors only considered who offer a server license option






# Top 10 Collaboration Tools from Needs Assessment Survey

- **Video desktop computer tools**
- **Web-based NAI emailing lists**
- **Web-based photo directory**
- **Web-based information repository/knowledge mgt system**
- **Scientific visualization/imaging capabilities**
- **Room-based videoconferencing system**
- **Wireless data sharing tools to/from field locations**
- **Web-based document sharing tools**
- **Data sharing desktop computer tools**
- **Live chats/real-time online meeting tools**



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# Collaborative Tools Study

- **Nearly 100 features identified**
- **200+ vendors/packages identified**
- **90 cross-platform packages selected for review**
- **Most promising packages selected**
- **Initial demos now being scheduled**

# Feature Categories

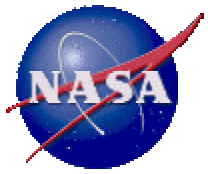
- **Communication**
- **Document Collaboration**
- **Work Organization**
- **User Personalization**
- **Virtual Office**
- **Distance Learning**
- **Delivery/User Interface**
- **Management and Administration**
- **Installation Model**
- **Training and Support**
- **Cost Factors**

# Promising Products Identified

| | |
|---|---|
| **•Video Conferencing (Room/Desktop)** | **•Knowledge Management** |
| –Room-based | –ArsDigita |
| •Avistar Video Applications | –eRoom |
| –Desktop Based | –Intraspect |
| •Video Link Pro | –LiveLink's Virtual Teams |
| •iVisit | . |
| . | . |
| **•Internet Presentations/Meetings with Chat** | **•Collaborative Portals ("full-featured")** |
| –Horizon Live | –eRoom |
| –iMeet | –Intraspect |
| –The Virtual Meeting | –LiveLink's Virtual Teams |
| –WebEx | –BrightSuite |
| . | –Cybozu Virtual Office |
| **•Document/Data Sharing** | –Lotus Quickplace |
| –BrightSuite | . |
| –Cybozu Virtual Office | . |
| –eRoom | . |
| –Intraspect | . |
| –LiveLink's Virtual Teams | . |
| –Lotus Quickplace | . |

# Next Steps

- **Design**
  - Vendor demos
    - Explore via real applications/situation
    - Participant comments (Discussion/Survey)
    - Observed patterns of use
    - “Neo-phobia” / “Neo-philia” distinguished from real shortcomings
    - Next vendor demo improved by feedback
- **Development**
  - Conduct pilots
  - Recruit mentors
  - Strengthen IT support

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# Request for Feedback

- **What specifically do you want to do from your desktop?**
  - Basic communication/collaboration
  - Advanced/science specific collaboration
- **Who should be involved in the next phase of demos?**
- **Other input regarding the development of NAI's technology architecture?**